

## JINST author manual

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**ABSTRACT:** This is the JINST author manual. Authors can use either  $\text{\LaTeX}$  or MS Word to produce manuscripts to be submitted to JINST.

**KEYWORDS:** JINST, LaTeX, MS Word.

*Dedicated to...  
if you want.*

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\*JINST Production Manager.

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## 1. General

If you are an author willing to prepare your manuscript for submission to JINST (Journal of Instrumentation) you can do it with L<sup>A</sup>T<sub>E</sub>X, Microsoft Word or OpenOffice.

From the JINST web site it is possible to download a template for both formats.

When your file is ready, you can submit it to JINST following the instructions on <http://jinst.sissa.it/jinst/help/helpLoader.jsp?pgType=author>.

## 2. L<sup>A</sup>T<sub>E</sub>X users

To begin your file in JINST class you can use `jinst-latex.sample.tex`.

The JINST class is derived from `JHEP3.cls` the L<sup>A</sup>T<sub>E</sub>X class for JHEP, which in turn is an extension of the standard article class. Files written in article style are turned into JINST just by changing the class name and other minor changes.

While respecting the common latex syntax, `JINST.cls` incorporates features like automatic in-text figures and hyper-references for formulæ, bibliography and table of contents.

Hyper-functionality has been added to the normal L<sup>A</sup>T<sub>E</sub>X instructions so that there is no need to learn new commands, except for new operations like hyper-linking inside or outside the document, and sending e-mail.

`JINST.cls` has been developed to run on a version of L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> newer than or equal to ‘June 96’, for code compatibility.

**pdflatex** can be used, but not with the published option. Also remember that `pdflatex` with `\pdfoutput=1` implies that you are using figures in formats like pdf, jpg or png. But remember that if you then submit your paper to JINST the file will automatically be compiled with  $\text{\LaTeX}$  and only postscript figure are acceptable.

In order to use  $\text{\LaTeX}$  to produce your contribution for JINST you first have to save the files `JINST.cls` and `JINSTlogo.ps`<sup>1</sup> in the directory where you want to write your file. Notice that `JINST.cls` requires the use of packages `amssymb`, `fontenc`, `times`, `mathptmx`, `graphicx`.<sup>2</sup> They are all standard packages, but should they be missing on your computer you can download them from <http://texcatalogue.sarovar.org/>.

It is important not to alter the page size, text width, text height... In particular do not use packages like `geometry`.

**Options.** The main options for the class are: `published` (not to be used by authors), `cits` and `nocits` to switch on and off the automatic collapsing of citations ranges (default off, don't use the package `cite.sty`), `hyper` and `nohyper` to switch on and off hyperlinks (default on, don't use `hyperref.sty`), `11pt`, `12pt`, `10pt`, `notoc` to remove table of contents, `draft`.

## 2.1 The title page

Use at the beginning of your file:

```
\documentclass{JINST}
```

Then with the commands

```
\title
\author
\abstract
```

you will be able to insert the data describing your article.

As an example, here is the portion of the source file that generated the title page of this manual.

```
\title{JINST author manual}

\author{Paolo Dall'Aglio\thanks{JINST Production Manger.}\\
        Journal of Instrumentation, Editorial Office\\
        Via L. Stock 2/2, Trieste, Italy\\
        E-mail: \email{pm@medialab.sissa.it}}

\abstract{This is the JINST author manual. Authors can use
either \LaTeX\ or MS Word to produce manuscripts to be submitted
to JINST.}

\keywords{JINST, LaTeX, MS Word}
```

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<sup>1</sup>Use `JINSTlogo.pdf` instead if you use `pdflatex`.

<sup>2</sup>With font Times the characters corresponding to `\j` and `\jmath` are missing. So they have been replaced with the corresponding Computer Modern characters, to produce `j` and `J`. Purists may prefer the use of other symbols.

```
\dedicated{Dedicated to\ldots\\if you want.}
```

```
\begin{document}
```

```
...
```

As in the titles of sections, only the first letter is capital (and the initials of personal names). Avoid, if possible, math symbols, otherwise write them in normal math style, without `\mathbf`.

If the authors are more than one, can be grouped in the same `\author` field authors if they belong to the same institution. Otherwise one can use exponents <sup>ab...</sup> like in the sample file

```
\author{First Author$^a$, Second Author$^b$\thanks{Corresponding
author.}~ and Third Author$^b$\\
\llap{$^a$}Name of Institute,\\
Address, Country\\
\llap{$^b$}Name of Institute,\\
Address, Country\\
E-mail: \email{CorrespondingAuthor@email.com}}
```

Any reference to grants and financial supports should be moved to the acknowledgments.

For each author provide: first and family name; complete institution's name and address (only one per author, if possible); e-mail address (with the command `\email`).

In the abstract only 'horizontal' material can be put. In-text formulæ are of course allowed. Also note that the abstract is part of the title page and thus must be declared *before* `\begin{document}`. The abstract must be short enough to be fully contained in the title page.

A command `\preprint{...}` is active to insert the preprint numbers at the top right-hand corner. Footnotes on the title page are done using `\thanks` instead of `\footnote`.

The keywords must be those chosen at submission in JINST (You can find the full list at <http://jinst.sissa.it/jinst/help/keywordsList.jsp>).

## 2.2 The paper body

For the rest of the paper you need not to follow strict rules. Just avoid changing the class settings such as section styles, headers, fonts, etc.

The table of contents is automatically generated.

The text is usually divided into numbered *sections*. Avoid, if possible, subsubsections, and never use non-numbered sections. For small subsections not to appear in the ToC, the command `\paragraph` can be used.

*Appendices*, to be put between the acknowledgments and the bibliography, are obtained with command `\appendix` before the first `\section{Title of appendix}`. In this way also equations are numbered correctly. Titles of appendices should not be simply "Appendix A, B..."

To emphasize words or sentences within the text do not use **boldface**, *slanted* or sans-serif. Use, sparingly, only *italic*, possibly with the `\emph{...}` command.

Latin abbreviations (e.g.: et al.) should be written without emphasis (i.e. in roman characters).

Equations are formatted as in plain L<sup>A</sup>T<sub>E</sub>X, plus hyperlinks. The spacing around the &'s in the `eqnarray` environment is slightly reduced, equal to that of the `equation` environment.

Only very short and simple formulæ should be left *undisplayed*. In particular avoid it when the formula contains high material, like a big fraction, an integral or a matrix.

To insert figures remember that the package `graphicx` is preloaded by default together with the JINST class.<sup>3</sup> This allows to insert a figure like in the following example:

```
\begin{figure}
\includegraphics[width=.6\textwidth]{figure.eps}
\caption{This is the caption of the figure.}
\label{fig1}
\end{figure}
```

Also tables can be freely used with the standard command

```
\begin{table}
\begin{tabular}{....}
....
\end{tabular}
\caption{This is the caption of the table.}
\label{tab1}
\end{table}
```

Please always put the caption *below* the figures and the tables. Don't use abbreviations Fig. and Tab. but rather write "figure" and "table".

**Special commands for figures and tables.** In addition to the standard `figure` and `table` environments, special commands for tables and figures are defined, that provide a finer placing of the object in the page.

`\FIGURE[pos]{body}` This command inserts an in-text figure. The `body` can contain any 'horizontal' material, *i.e. no `vskips`*, and its width is automatically calculated. To select a given width one should enclose the content in a `\parbox`.

The `\caption{...}` command can be used inside and works as usual. A typical form of `body`, which uses `epsfig`, is `'\epsfig{...}\caption{...}'`, with any size changing commands.

`\TABLE[pos]{body}` This command is similar to `\FIGURE`. As with the `table` environment of  $\text{\LaTeX}$ , authors have to use a `tabular` environment inside to generate the actual table.

Both commands generate floating objects which are inserted in the text as soon as there is enough space on the page. If the object happens to be larger than 60% of the `textwidth`, it is centered in the page like usual  $\text{\LaTeX}$  floats.

The optional argument `pos` can be used to change the *horizontal* positioning, which by default is `p`. This corresponds to: right hand side in one-side mode or outer part of the pages in two-side mode.

In case the figure or table is larger than 60%, the argument `pos` selects the *vertical* positioning as in  $\text{\LaTeX}$  [3], with the default setting `ht`. As a consequence, by default, the big floats appear either at the point where they are called or at the top of subsequent pages. Otherwise it can be `t` (top), `b` (bottom) or `h` (here).

Two further commands are provided as a shorthand for useful forms of `\FIGURE` and `\TABLE`:

`\EPSFIGURE[pos]{filename}{capt}` this command produces an in-text figure and is equivalent to:  
`\FIGURE[pos]{\epsfig{file=filename}\caption{capt}}`. Note that to use this command, the package `epsfig` has to be invoked in the preamble with `\usepackage{epsfig}`. Using `epsfig` also gives the opportunity to scale the figures via the keywords `width` or `height`, e.g.:  
`\EPSFIGURE[pos]{filename,width=...}{capt}`.

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<sup>3</sup>Documentation can be found here [1].

`\TABULAR[pos]{align}{body}{capt}` This command can be used to produce a complete table: `align` represents the alignment directives as in the `tabular` environment, `body` contains the table entries, and `capt` the table caption. This is equivalent to:

```
\TABLE[pos]{\begin{tabular}{align}body\end{tabular}\caption{capt}}
```

`\DOUBLEFIGURE[pos]{filename1}{filename2}{capt1}{capt2}` to put two figures one besides the other each one with its caption and number.

```
\DOUBLETABLE[pos]{\begin{tabular}...\end{tabular}}
                  {\begin{tabular}...\end{tabular}}{capt1}{capt2}
```

For theorems use standard declarations in the preamble such as

```
\newtheorem{theorem}{Theorem}
\newtheorem{lemma}{Lemma}
...
```

the style being determined in the `JINST.cls`. Please do not number theorems within sections nor lemmas within theorems.

Other special commands include: `\appendix` that switches the section numbering to letters instead of numbers, and `\acknowledgments` to produce a title for acknowledgments (to be used at the end of the paper).

For a more detailed help on the use of  $\text{\LaTeX}$  you can refer to standard books such as [2] or the all-inclusive [3], or online resources like [4].

## 2.3 The bibliography

For the bibliography please follow these rules: Names, with initials, in roman character, title in italic (capitalize only the first word, except for proper nouns and element symbols), journal reference and, if applicable, arXiv reference (in brackets when the paper is published). For arXiv references there are macros that bear automatic internet links (see below). For journals you can add the link with the command `\href{...}{...}` and appropriate URLs.

- [2] A.I. Harris, *Spectroscopy with multichannel correlation radiometers*, *Rev. Sci. Instrum.* **76** (2005) 054503 [[astro-ph/0504449](http://arxiv.org/abs/astro-ph/0504449)].

```
A.I. Harris,
\emph{Spectroscopy with multichannel correlation radiometers},
\href{http://dx.doi.org/10.1063/1.1898643}
{\emph{Rev.\ Sci.\ Instrum.} {\bf 76} (2005) 054503}
[\astroph{0504449}].
```

In particular for papers published in JINST you can use the macro `\jinst{.}{...}{.....}` which automatically gives the internet link

- [1] A. Pietropaolo et al., *DINS measurements on VESUVIO in the resonance detector configuration: proton mean kinetic energy in water*, 2006 *JINST* **1** P04001.

```
A. Pietropaolo et al., \emph{DINS measurements on VESUVIO in the
resonance detector configuration: proton mean kinetic energy in
water}, \jinst{1}{2006}{P04001}.
```

For books: author in roman, title in italic, publisher, town year.

- [3] G.F. Knoll, *Radiation detection and measurements*, John Wiley and Sons, Inc., New York 2000.

G.F. Knoll, `\emph{Radiation detection and measurements}`,  
John Wiley and Sons, Inc., New York 2000.

For contributions to collective volumes please put both the title of the article and the title of the book.

- [4] V. Dangendorf, *Time-resolved fast-neutron imaging with a pulse-counting image intensifier*, in proceedings of *International workshop on fast neutron detectors and applications*, April, 3–6, 2006 University of Cape Town, South Africa PoS(FNDA2006)008.

V. Dangendorf, `\emph{Time-resolved fast-neutron imaging with a pulse-counting image intensifier}`, in proceedings of  
`\emph{International workshop on fast neutron detectors and applications}`, April, 3--6, 2006 University of Cape Town,  
South Africa `\pos{PoS(FNDA2006)008}`.

In particular notice above that to cite a paper that appeared on PoS<sup>4</sup> you can use the command `\pos{...}` that provides the hyperlink to the contribution. If the contribution is not yet published the link will work from the date of publication.

For the list of authors write all of them unless there are more than six, in which case write the first name and then “et al.”.

As for citations, the package `cite` is incompatible with the JINST class because it turns off hyperlinks. Instead the option `cits`

```
\documentclass[cits]{JINST}
```

can be used. It makes ranges collapse but without reordering.

**Journals.** There are special commands for links to all journals of the family: `\jinst`, `\jhep`, `\jcap` (three arguments), `jstat` (two arguments).

**Archives.** In addition, further shortcuts are provided for the preprints of arXiv. They require one argument, that is the combination of year (last two digits), month (two digits) and archive number (three digits), totally seven digits;

```
\condmath -> {\tt cond-math/#1}, and all the others
\hepth \hepph \heplat \hepex \nuclth \nucleth \grqc \qalg \dgga
\accphys \alggeom \astroph \chaodyn \condmat \nlinsys \quantph
\solvint \suprcon \mathph \physics
```

and for math archives `\Math{#1}{#2}` where the first argument is for the two capital letters specification of the field and the second is the archive number, e.g.:

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<sup>4</sup>PoS, Proceedings of Science, is the Open Access service for the publication of proceedings of conferences and lecture notes linked to JINST and the other SISSA-IOPP journals <http://pos.sissa.it/>

`\Math{QA}{9901241} -> {\tt math.QA/9901241}.`

Notice that the shortcuts above also provide hyperlinks to the online data of the corresponding references.

If you want to use bibtex the file JHEP.bst is perfectly compatible with both JHEP and JINST class files.

## 2.4 Command summary

Here we summarize the commands defined or modified in the JINST class w.r.t. the article class.

**Preamble commands.** Commands to build the title page:

- `\title{...}`: to declare the title.
- `\author{names\addr}`: to supply names of authors and a single address. More commands must be used for different addresses. Further `\`'s in `addr` can be used to break lines in the address.
- `\thanks{...}`: should be used inside `\author` to provide further information. It generates a footnote in the titlepage.
- `\abstract{...}`: provides the abstract.
- `\preprint{...}`: provides the preprint numbers, which are typeset in the upper right-hand corner.
- `\keywords{...}`: provides the keywords, which appear below the abstract. Separate with semicolon.
- `\dedicated{...}`: a dedication is inserted on the right hand-side, below the keywords.

**Tables and figures.** To generate floating tables and figures, which are in-text if sufficiently narrow.

- `\TABLE[pos]{...}`: generates a table object. It can be any 'horizontal' material. `\caption` can be used inside it.
- `\FIGURE[pos]{...}`: generates a floating in-text figure, similar to `\TABLE`.
- `\TABULAR[pos]{align}{...}{capt}`: generates a full table, with `align` are the column definitions as in `tabular`, ... the table entries, and `capt` the caption.
- `\EPSFIGURE[pos]{filename}{capt}`: generates a figure from the EPS file `filename`.
- `\DOUBLETABLE[pos]{\begin{tabular}...\end{tabular}}{\begin{tabular}...\end{tabular}}{capt1}{capt2}`: produces two paired tables each with its caption and number.
- `\DOUBLEFIGURE[pos]{filename1}{filename2}{capt1}{capt2}`: generates two paired figures each with its caption and number.

**Hyper commands.** The usual  $\LaTeX$  commands for citations, labels, references, are hyper-active unless the `nohyper` or `paper` option is used to prepare the paper version. New specific commands are:

- `\href{url}{text}`: this command can be used to link `text` directly to some URL.
- `\name{tag}`: in case the author wants to insert a personal HTML tag in the document.
- `\base{url}`: some hyper-readers support relative URLs, and `\base` provides the base.
- `\textref{label}{text}`: it is equivalent to the `\ref` command; this links `text` to the point where `label` is used.

## 3. MS Word users

If you are an MS Word user you will find the file `jinst-word-sample.doc`<sup>5</sup> that is a sample file completely prepared in the JINST style. It will be very useful to save a copy of this file separately in case something goes wrong when you modify it.

You are requested to insert the data without altering the style, in particular for the first page.

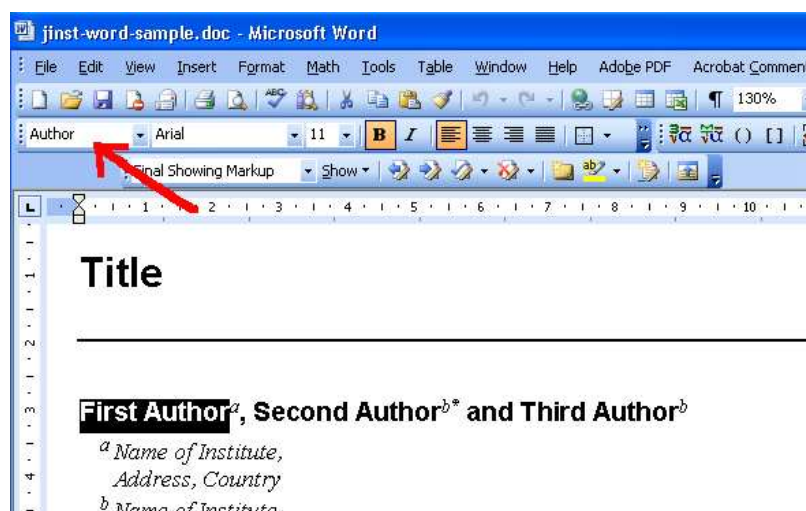
---

<sup>5</sup>Prepared with Microsoft Word 2003 on Windows XP.



The MS Word template can be used also with Open Office, although not all is perfectly compatible. In particular the email addresses need to be de-italicized and the footnotes renumbered (symbols like \*, †, ... on the first page and then numbers). Also fonts might not be exactly equal.

If necessary, to adjust the style, highlight the words you want to set and select the appropriate style from the menu in upper left part of your Word window:



This is the correct way to obtain that the article respects the JINST style. Another way to view the styles is to click on “Format” → “Styles and formatting”. Do not change the font sizes or line spacing. Use italics to emphasize, do not underline.

### 3.1 The title page

All you need do is write your metadata in the places where you find “Title”, “Author”, “Name of Institute, Address, Country”, “email” and “abstract”.

The corresponding author can be indicated by a footnote “Corresponding author”.

The keywords must be those chosen at submission in JINST (You can find the full list at <http://jinst.sissa.it/jinst/help/keywordsList.jsp>).

For example on the first page you can select styles like the following:

Title is the style to be selected when writing the title of the paper;

Author is for the name of the author;

Address to be used in the affiliation

Abstract for the email address.

Keywords for the list of keywords.

and so on for the other parts of the document, including section headings, footnotes and the normal text.

### 3.2 The paper body

To write the body of your paper you should always use the appropriate style, to be selected as shown in the previous figure. There are styles for section headings (automatically numbered), for the footnotes, for the text body. For instance:

Body Text for normal text;

Section for section titles;

Subsection and Subsubsection for subsection titles.

It is very important that you do not alter the layout (page size, spacings), nor the font.

All mathematical symbols should be written with Equation Editor (“Insert” → “Object” → equation), rather than with symbols.

All figures should be numbered continuously (not within sections) and should have a caption, placed below the picture. Don’t use abbreviations Fig. and Tab. but rather write “figure” and “table”. Before submitting please prepare a .zip file containing the full article (with figures in their place) and the original files of all figures.

### 3.3 The bibliography

Bibliography items are to be numbered consecutively in square brackets [1], and cited in the same way. Multiple citations are in separate brackets [1], [3] or [2]–[4]. For the bibliography please follow these rules: names, with initials, in roman character, title in italic (capitalize only the first word, except for proper nouns and element symbols), journal reference and, if applicable, arXiv reference (in brackets when the paper is published).

These are the same examples that you will find at the end of the sample file:

- [1] A. Pietropaolo et al., *DINS measurements on VESUVIO in the resonance detector configuration: proton mean kinetic energy in water*, 2006 JINST **1** P04001.
- [2] A.I. Harris, *Spectroscopy with multichannel correlation radiometers*, *Rev. Sci. Instrum.* **76** (2005) 054503 [astro-ph/0504449].

Notice that you can add internet links, looking up the DOI identifier on the journal web pages, or working out the URL from the paper number (like for JINST).

For books: author in roman, title in italic, publisher, town year.

- [3] G.F. Knoll, *Radiation detection and measurements*, John Wiley and Sons, Inc., New York 2000.

For contributions to collective volumes please put both the title of the article and the title of the book.

- [4] V. Dangendorf, *Time-resolved fast-neutron imaging with a pulse-counting image intensifier*, in proceedings of *International workshop on fast neutron detectors and applications*, April, 3–6, 2006 University of Cape Town, South Africa PoS (FNDA2006) 008.

In particular notice that to cite a paper that appeared on PoS<sup>6</sup> the ID number should be used, and it can be linked directly to the web page of the article as in the bibliography of the MSWord template ([http://pos.sissa.it/cgi-bin/reader/contribution.cgi?id=PoS\(FNDA2006\)008](http://pos.sissa.it/cgi-bin/reader/contribution.cgi?id=PoS(FNDA2006)008))

For the list of authors write all of them unless there are more than six, in which case write the first name and then “et al.”.

## References

- [1] D.P. Carlisle, *Packages in the “graphics” bundle*,  
<ftp://tug.ctan.org/pub/tex-archive/macros/latex/required/graphics/grfguide.ps>
- [2] L. Lamport, *LaTeX: a document preparation system: user’s guide and reference manual*, Addison-Wesley, Reading 1994.
- [3] M. Goossens, F. Mittelbach and A. Samarin, *The LaTeX companion*, Addison Wesley, Reading 1994.
- [4] T. Oetiker, H. Partl, I. Hyna and E. Schlegl, *The not so short introduction to LaTeX2<sub>ε</sub>*,  
[www.ctan.org/tex-archive/info/lshort/english/lshort.pdf](http://www.ctan.org/tex-archive/info/lshort/english/lshort.pdf).

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<sup>6</sup>PoS, Proceedings of Science, is the Open Access service for the publication of proceedings of conferences and lecture notes linked to JINST and the other SISSA-IOPP journals <http://pos.sissa.it/>